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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,946	09/26/2003	Takuya Matsumoto	8305-233US (61-0002-1)	9416

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ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103

EXAMINER

BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,946

Applicant(s)

MATSUMOTO ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. This Office Action follows a response filed on November 23, 2005. No new claims were added or amended. Claims 1-12 are pending.

Claim Rejections - 35 USC § 103

2. The test of this section of Title 35, U.S.C. not included in this action can be found in a prior Office Action.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (U.S. Patent 6,136,225) in view of Richard J. Lewis Sr. ("Hawley's Condensed Chemical Dictionary", 14th Edition, John Wile & Sons, Inc., NY 2001) for the rationale recited in paragraph 1 of Office Action dated on August 25, 2005.

4. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. and Richard J. Lewis Sr. as applied to claims 1-4 above, and further in view of Kawakami et al. (JP 08-020641 and JP 06-308462) for the rationale recited in paragraph 2 of Office Action dated on August 25, 2005.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. and Richard J. Lewis Sr. as applied to claims 1-4 above, and further in view of Hammond-Smith et al. (U. S. Patent Application Publication 2003/0104144 A1) for the rationale recited in paragraph 2 of Office Action dated on August 25, 2005.

6. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. and Richard J. Lewis Sr. as applied to claims 1-4 above, and further in view of Hammond-Smith et al., Prechtl et al. (U. S. Patent 6,712,992) and Hikmet et al. (U. S.

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Patent 6,171,518) for the rationale recited in paragraph 2 of Office Action dated on August 25, 2005.

Response to Arguments

7. Applicants traverse the rejection of claims under 35 U.S.C. 103 (a) as being unpatentable as obvious over Meyer et al. (U.S. Patent 6,136,225) in view of Richard J. Lewis Sr. ("Hawley's Condensed Chemical Dictionary", 14th Edition, John Wile & Sons, Inc., NY 2001). Applicant's arguments have been fully considered but they are not persuasive.

Applicants contend that Meyer fails to disclose the presence of an oxeanyl moiety. The only mention of any cyclic ether group in Meyer is limited to an epoxide (US' 225, col. 2, lines 45-56). Epoxide refers specifically to three-membered cyclic ether, but oxetane is four-membered cyclic ether, and this difference is not insignificant. The reactivity of an epoxide group and the reactivity of an oxetane group are significantly different (page 2, the last paragraph through page 3, line 9).

Applicants submit that the reference to oxetane as a type of epoxy group in Hawley's does not suggest the use of oxetane as a substituent in a reference directed to the potential inclusion of an epoxide group in a compound. Moreover, Meyer simply fails to disclose any generic reference to all types of epoxies. Therefore, it would not have been obvious to substitute oxetane in the compounds of Meyer reference wherein the specific three-membered epoxide group is disclosed as one potential substituent among reactive groups, as suggested in the Action (page 3).

Accordingly, Applicants submit that the combination of Meyer and Hawley fails to satisfy the requirements necessary to establish a *prima facie* case of obviousness.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Meyer discloses that Z¹ and Z² are independently selected from the groups including acrylic group (col. 3, line 13) and **epoxy group** (col. 54, lines 4-7). Although Meyer does not disclose the specific use of oxetane group, Richard J. Lewis Sr. discloses that an oxetane group (=COCH₂C=) is one kind of epoxy group (page 825).

That means the oxetane group taught by Lewis Sr. is specie of epoxy group taught by Meyer.¹

Applicants contend that while Meyer does not note that the reactive groups Z¹ and Z² may be independently selected from among the many reactive groups as being suitable, Meyer does not specifically state that Z¹ and Z² are preferable identical. Thus, it is even more difficult to conclude that one of ordinary skill in the art would find motivation in the teachings of Meyer to not only deviate from the preferred teachings of the reference in order to arrive at a compound as claimed (page 3, last paragraph).

¹ Additionally, a lot of patents clearly disclose that epoxy and oxetane groups as functionally equivalent end groups of acrylate polymer. For example, Hiwara et al (U. S. Patent 6,166,100) discloses cationically polymerizable **acrylic** resin consisting of a copolymer of (a) a (meth) acrylic ester monomer, (b) a polymerizable unsaturated monomer containing a polymerizable unsaturated group and at least one cationically polymerizable moiety selected from the group consisting of an **epoxy** group and an **oxetane** ring (abstract). Hiwara discloses that the polymerizable unsaturated monomer (b) contain the polymerizable unsaturated monomer and the cationically polymerizable moiety *selected from the group consisting of the epoxy group and the oxetane ring* (col. 2, lines 24-28).

Arimura et al (U. S. Patent 6,828,030) discloses that preferably, the component units (b-1) derived from an acrylic unsaturated monomer containing a polar group have component units derived from an acrylic unsaturated monomer containing at least one polar group selected from the group consisting of a hydroxyl group, a hydroxyalkyl group, an alkoxyl group, a polyoxyalkylene group, an alkylpolyoxyalkylene group, an amino group, an **epoxy group**, an oxolane group, an **oxetane group**, oxirane group, a tetrahydrofurfuryl group and a morpholino group (col. 10, lines 58-67). See, also the U.S. Patents 5,882,842, 6,015,848, 6,262,147, 6,319,557, 6,322,892 and 6,582,862 that clearly discloses the obtaining of acrylic compositions by using epoxy and oxetane groups like interchangeable parts of the compositions.

It is worth to mention that Meyer clearly discloses that Z^1 and Z^2 are **independently** selected from the groups including acrylic group (col. 3, lines 8-32, claim 19, col. 53 and 54) and **epoxy group** (col. 54, lines 4-7). Meyer *does not specifically state that Z^1 and Z^2 are preferable identical, as Applicants contend*, in the contrary, Meyer discloses a lot of radicals which can be used for obtaining polymerizable liquid-crystalline compounds (col. 2, lines 32-52, col.3, lines 8-32, etc.).

Applicants contend that the Examiner rejection of claims 5 and 6 is wrong due to erroneous interpretation of JP'641 and JP'462 of Kawakami. The high molecular weight liquid crystal compounds disclosed in both of Japanese references contain a polyoxetane backbone. The side chain-type liquid crystalline polymeric substance of claim 2 and those dependent on claim 2 are based on the homopolymerization of the (meth) acrylic portion of the compound of claim 1. Accordingly, the side chain-type liquid crystalline polymeric substance comprises (meth) acrylic backbone. Applicants contend that the fact that the compound of claims 1 includes an oxetane group does not render the side-chain polymers of the Japanese references "analogs" of the claimed substances. Accordingly, neither JP'641 nor JP'462 remedies the deficiencies of the Meyer and Hawley's references (page 4)

In response to applicant's argument that Kawakami's references is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the

claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

In this case, Kawakami's references discloses the obtaining a high-polymer liquid crystal with the main chain consisting of polyoxetane, having specific recurring units, exhibiting high response rate to electric field change even at elevated temperatures, excellent in display characteristics for wide screens or curved screens, thus useful for electro-optical devices (abstract). Certainly, both Kawakami's references belong to the same field of endeavor concerning the obtaining a high-polymer liquid crystal useful for electro-optical devices and reasonably pertinent to the particular problem with which the applicant was concerned.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

In response to applicant's argument about rejection of claims 5 and 6, it is worth to mention that there is no specific limitation of a side chain-type liquid crystalline polymeric substance in claim 2 and dependable claims 5 and 6, and rejection of those claims remains in force. Please, see § 1 and 2 of Office Action dated on August 25, 2005.

8. In the light of the discussion above, the rejection of record has not been withdrawn. The rejection remains in force.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn
Examiner
Art Unit 1713

MB
02/06/2006



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